



- 1 -

SEQUENCE LISTING

<110> Evans, Glen A.

<120> Non-Immunoglobulin Binding Polypeptides

<130> 66663-026

<140> US 10/611,655

<141> 2003-06-30

<160> 13

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 162

<212> PRT

<213> Homo sapiens

<400> 1

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| Met | Asn | Leu | Ala | Ile | Ser | Ile | Ala | Leu | Leu | Leu | Thr | Val | Leu | Gln | Val |
| 1 | | | | 5 | | | | 10 | | | | | 15 | | |
| Ser | Arg | Gly | Gln | Lys | Val | Thr | Ser | Leu | Thr | Ala | Cys | Leu | Val | Asp | Gln |
| | | 20 | | | | | | 25 | | | | 30 | | | |
| Ser | Leu | Arg | Leu | Asp | Cys | Arg | His | Glu | Asn | Thr | Ser | Ser | Ser | Pro | Ile |
| | | 35 | | | | 40 | | | | | 45 | | | | |
| Gln | Tyr | Glu | Glu | Ser | Leu | Thr | Arg | Glu | Thr | Lys | Lys | His | Val | Leu | Phe |
| | 50 | | | | | 55 | | | | 60 | | | | | |
| Gly | Thr | Val | Gly | Val | Pro | Glu | His | Thr | Tyr | Arg | Ser | Arg | Thr | Asn | Phe |
| 65 | | | | | 70 | | | | 75 | | | | | 80 | |
| Thr | Ser | Lys | Tyr | His | Met | Lys | Val | Leu | Tyr | Leu | Ser | Ala | Phe | Thr | Ser |
| | | | 85 | | | | | 90 | | | | | 95 | | |
| Lys | Asp | Glu | Gly | Thr | Tyr | Thr | Cys | Ala | Leu | His | His | Ser | Gly | His | Ser |
| | | 100 | | | | | 105 | | | | | 110 | | | |
| Pro | Pro | Ile | Leu | Ser | Ser | Gln | Asn | Val | Thr | Val | Leu | Arg | Asp | Lys | Leu |
| | | 115 | | | | 120 | | | | | 125 | | | | |
| Val | Lys | Cys | Glu | Gly | Ile | Ser | Leu | Leu | Ala | Gln | Asn | Thr | Ser | Trp | Leu |
| | 130 | | | | | 135 | | | | 140 | | | | | |
| Leu | Leu | Leu | Leu | Leu | Ser | Leu | Ser | Leu | Leu | Gln | Ala | Thr | Asp | Phe | Met |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 |
| Ser | Leu | | | | | | | | | | | | | | |

<210> 2

<211> 124

<212> PRT

<213> Homo sapiens

<400> 2

Gln Leu Gln Gln Ser Gly Glu Ala Leu Val Lys Pro Gly Ala Ser Val

| | | | |
|---|-----|-----|-----|
| 1 | 5 | 10 | 15 |
| Arg Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Pro Asn Tyr Trp Met | | | |
| | 20 | 25 | 30 |
| His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile Gly Thr | | | |
| | 35 | 40 | 45 |
| Ile Asp Pro Ala Asp Ser Tyr Thr Ser Tyr Asn Gln Asn Phe Lys Asp | | | |
| | 50 | 55 | 60 |
| Lys Ala Thr Leu Thr Val Lys Pro Ser Ser Thr Ala Tyr Met Gln Leu | | | |
| 65 | 70 | 75 | 80 |
| Ser Ser Leu Thr Phe Gly Asp Ser Ala Val Tyr Phe Cys Ala Arg Glu | | | |
| | 85 | 90 | 95 |
| Ser Tyr Tyr Tyr Arg Tyr Tyr Phe Asp Tyr Trp Gly His Gly Thr Thr | | | |
| | 100 | 105 | 110 |
| Leu Thr Val Ser Ser Ala Lys Thr Thr Pro Lys Leu | | | |
| | 115 | 120 | |

<210> 3
 <211> 37
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Consensus peptide

| |
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| <400> 3 |
| Gln Leu Ser Leu Lys Leu Cys Lys Ser Ser Phe Arg Gly Thr Ile Asp |
| 1 5 10 15 |
| Asn Phe Lys Asp Ala Thr Thr Ser Ile Ser Ser Glu Gly Ile Trp Leu |
| 20 25 30 |
| Ser Leu Ser Thr Leu |
| 35 |

<210> 4
 <211> 111
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> ThyOx non-immunoglobulin binding polypeptide

| |
|---|
| <400> 4 |
| Gln Val Ser Arg Gly Gln Lys Val Thr Ser Leu Thr Ala Cys Leu Val |
| 1 5 10 15 |
| Asp Gln Ser Leu Arg Leu Asp Cys Arg His Glu Asn Thr Ser Ser Ser |
| 20 25 30 |
| Asn Tyr Trp Met His Phe Ser Leu Thr Arg Glu Thr Lys Lys His Val |
| 35 40 45 |
| Leu Phe Gly Thr Ile Asp Pro Ala Asp Ser Tyr Thr Ser Tyr Asn Gln |
| 50 55 60 |
| Asn Phe Lys Asp Glu Gly Thr Tyr Thr Cys Ala Leu His His Ser Gly |
| 65 70 75 80 |
| His Ser Pro Pro Ile Ser Ser Gln Asn Val Thr Val Leu Arg Asp Lys |
| 85 90 95 |

Leu Val Lys Cys Glu Gly Val Tyr Tyr Arg Tyr Tyr Phe Asp Tyr
 100 105 110

<210> 5

<211> 1050

<212> DNA

<213> Artificial Sequence

<220>

<223> carrier encoding erythropoietin

<221> CDS

<222> (21)...(1022)

<400> 5

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 Met Gly Val His Glu Cys Pro Ala Trp Leu Trp
 1 5 10

ctg ctg ctg agc ctg ctg agc ctg ccc ctg ggc ctg ccc gtg ctg ggc 101
 Leu Leu Leu Ser Leu Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly
 15 20 25

gcc ccc ccc cgg ctg atc tgc gac agc cgg gtg ctg gag cgg cac ctg 149
 Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu Arg His Leu
 30 35 40

ctg gag gcc aag gag gcc gag agc atc acc acc ggc tgc gtg gag gac 197
 Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys Val Glu Asp
 45 50 55

tgc agc ctg aac gag aac atc acc gtg ccc gac agc aag gtg aac ttc 245
 Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ser Lys Val Asn Phe
 60 65 70 75

tac gcc tgg aag cgg atg gag gtg ggc cag cag gcc gtg gag gtg tgg 293
 Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val Glu Val Trp
 80 85 90

cag ggc ctg gcc ctg ctg agc gag gcc gtg ctg cgg ggc cag gcc ctg 341
 Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly Gln Ala Leu
 95 100 105

ctg gtg atc agc agc cag ccc tgg gag ccc ctg cag ctg cac gtg gac 389
 Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp
 110 115 120

aag gcc gtg agc ggc ctg cgg agc ctg acc acc ctg ctg cgg gcc ctg 437
 Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu
 125 130 135

ggc gcc cag aag gag gcc atc agc ccc ccc gac gcc gcc agc gcc gcc 485
 Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala

| 140 | 145 | 150 | 155 | |
|---|-----|-----|-----|------|
| ccc ctg cgg acc atc acc gcc gac acc ttc cgg aag ctg ttc cgg gtg | | | | 533 |
| Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val | | | | |
| | 160 | 165 | 170 | |
| tac ccc aac ttc ctg cgg ggc aag ctg aag ttc tac acc ggc gag gcc | | | | 581 |
| Tyr Pro Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr Gly Glu Ala | | | | |
| | 175 | 180 | 185 | |
| tgc cgg ggc ggc ggc ggc ggc agc ggc ggc ggc ggc gag ttc ggc ggc | | | | 629 |
| Cys Arg Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly Glu Phe Gly Gly | | | | |
| | 190 | 195 | 200 | |
| ggc ggc agc cag aag gtg acc agc ctg acc gcc tgc ctg gtg gac cag | | | | 677 |
| Gly Gly Ser Gln Lys Val Thr Ser Leu Thr Ala Cys Leu Val Asp Gln | | | | |
| | 205 | 210 | 215 | |
| agc ctg cgg ctg gac tgc cgg cac gag aac acc agc agc agc ccc atc | | | | 725 |
| Ser Leu Arg Leu Asp Cys Arg His Glu Asn Thr Ser Ser Ser Pro Ile | | | | |
| | 220 | 225 | 230 | 235 |
| cag tac gag ttc agc ctg acc cgg gag acc aag aag cac gtg ctg ttc | | | | 773 |
| Gln Tyr Glu Phe Ser Leu Thr Arg Glu Thr Lys Lys His Val Leu Phe | | | | |
| | 240 | 245 | 250 | |
| ggc acc gtg ggc gtg ccc gag cac acc tac cgg agc cgg acc aac ttc | | | | 821 |
| Gly Thr Val Gly Val Pro Glu His Thr Tyr Arg Ser Arg Thr Asn Phe | | | | |
| | 255 | 260 | 265 | |
| acc agc aag tac cac atg aag gtg ctg tac ctg agc gcc ttc acc agc | | | | 869 |
| Thr Ser Lys Tyr His Met Lys Val Leu Tyr Leu Ser Ala Phe Thr Ser | | | | |
| | 270 | 275 | 280 | |
| aag gac gag ggc acc tac acc tgc gcc ctg cac cac agc ggc cac agc | | | | 917 |
| Lys Asp Glu Gly Thr Tyr Thr Cys Ala Leu His His Ser Gly His Ser | | | | |
| | 285 | 290 | 295 | |
| ccc ccc atc agc agc cag aac gtg acc gtg ctg cgg gac aag ctg gtg | | | | 965 |
| Pro Pro Ile Ser Ser Gln Asn Val Thr Val Leu Arg Asp Lys Leu Val | | | | |
| | 300 | 305 | 310 | 315 |
| aag tgc gag ggc atc agc ctg ctg gcc cag aac acc agc cac cac cac | | | | 1013 |
| Lys Cys Glu Gly Ile Ser Leu Leu Ala Gln Asn Thr Ser His His His | | | | |
| | 320 | 325 | 330 | |
| cac cac cac tgatgataag atcggatcct aggcttcc | | | | 1050 |
| His His His | | | | |

<210> 6

<211> 334

<212> PRT

<213> Artificial Sequence

<220>

<223> chimeric ThyOx carrier polypeptide containing
erythropoietin

<400> 6

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Met | Gly | Val | His | Glu | Cys | Pro | Ala | Trp | Leu | Trp | Leu | Leu | Leu | Ser | Leu | |
| 1 | | | | 5 | | | | 10 | | | | | | 15 | | |
| Leu | Ser | Leu | Pro | Leu | Gly | Leu | Pro | Val | Leu | Gly | Ala | Pro | Pro | Arg | Leu | |
| | | | 20 | | | | | 25 | | | | | | 30 | | |
| Ile | Cys | Asp | Ser | Arg | Val | Leu | Glu | Arg | His | Leu | Leu | Glu | Ala | Lys | Glu | |
| | | 35 | | | | | 40 | | | | | | 45 | | | |
| Ala | Glu | Ser | Ile | Thr | Thr | Gly | Cys | Val | Glu | Asp | Cys | Ser | Leu | Asn | Glu | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| Asn | Ile | Thr | Val | Pro | Asp | Ser | Lys | Val | Asn | Phe | Tyr | Ala | Trp | Lys | Arg | |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| Met | Glu | Val | Gly | Gln | Gln | Ala | Val | Glu | Val | Trp | Gln | Gly | Leu | Ala | Leu | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| Leu | Ser | Glu | Ala | Val | Leu | Arg | Gly | Gln | Ala | Leu | Leu | Val | Ile | Ser | Ser | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| Gln | Pro | Trp | Glu | Pro | Leu | Gln | Leu | His | Val | Asp | Lys | Ala | Val | Ser | Gly | |
| | | 115 | | | | | 120 | | | | | 125 | | | | |
| Leu | Arg | Ser | Leu | Thr | Thr | Leu | Leu | Arg | Ala | Leu | Gly | Ala | Gln | Lys | Glu | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| Ala | Ile | Ser | Pro | Pro | Asp | Ala | Ala | Ser | Ala | Ala | Pro | Leu | Arg | Thr | Ile | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| Thr | Ala | Asp | Thr | Phe | Arg | Lys | Leu | Phe | Arg | Val | Tyr | Pro | Asn | Phe | Leu | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| Arg | Gly | Lys | Leu | Lys | Phe | Tyr | Thr | Gly | Glu | Ala | Cys | Arg | Gly | Gly | Gly | |
| | | 180 | | | | | | 185 | | | | | 190 | | | |
| Gly | Gly | Ser | Gly | Gly | Gly | Gly | Glu | Phe | Gly | Gly | Gly | Gly | Ser | Gln | Lys | |
| | 195 | | | | | | 200 | | | | | 205 | | | | |
| Val | Thr | Ser | Leu | Thr | Ala | Cys | Leu | Val | Asp | Gln | Ser | Leu | Arg | Leu | Asp | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| Cys | Arg | His | Glu | Asn | Thr | Ser | Ser | Ser | Pro | Ile | Gln | Tyr | Glu | Phe | Ser | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| Leu | Thr | Arg | Glu | Thr | Lys | Lys | His | Val | Leu | Phe | Gly | Thr | Val | Gly | Val | |
| | | | | 245 | | | | | 250 | | | | | 255 | | |
| Pro | Glu | His | Thr | Tyr | Arg | Ser | Arg | Thr | Asn | Phe | Thr | Ser | Lys | Tyr | His | |
| | | 260 | | | | | | 265 | | | | | 270 | | | |
| Met | Lys | Val | Leu | Tyr | Leu | Ser | Ala | Phe | Thr | Ser | Lys | Asp | Glu | Gly | Thr | |
| | 275 | | | | | | 280 | | | | | 285 | | | | |
| Tyr | Thr | Cys | Ala | Leu | His | His | Ser | Gly | His | Ser | Pro | Pro | Ile | Ser | Ser | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| Gln | Asn | Val | Thr | Val | Leu | Arg | Asp | Lys | Leu | Val | Lys | Cys | Glu | Gly | Ile | |
| 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| Ser | Leu | Leu | Ala | Gln | Asn | Thr | Ser | His | His | His | His | His | His | His | | |
| | | | | 325 | | | | | 330 | | | | | | | |

<210> 7

<211> 1050

<212> DNA

<213> Artificial Sequence

<220>

<223> SuperEpo

<221> CDS

<222> (21)...(1022)

<400> 7

gattggcgaa gcttggagga atg ggc gtg cac gag tgc ccc gcc tgg ctg tgg 53
Met Gly Val His Glu Cys Pro Ala Trp Leu Trp
1 5 10

ctg ctg ctg agc ctg ctg agc ctg ccc ctg ggc ctg ccc gtg ctg ggc 101
Leu Leu Leu Ser Leu Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly
15 20 25

gcc ccc ccc cgg ctg atc tgc gac agc cgg gtg ctg gag cgg cac ctg 149
Ala Pro Pro Arg Leu Ile Cys Asp Ser Arg Val Leu Glu Arg His Leu
30 35 40

ctg gag gcc aag gag gcc gag agc atc acc acc ggc tgc gtg gag gac 197
Leu Glu Ala Lys Glu Ala Glu Ser Ile Thr Thr Gly Cys Val Glu Asp
45 50 55

tgc agc ctg aac gag aac atc acc gtg ccc gac agc aag gtg aac ttc 245
Cys Ser Leu Asn Glu Asn Ile Thr Val Pro Asp Ser Lys Val Asn Phe
60 65 70 75

tac gcc tgg aag cgg atg gag gtg ggc cag cag gcc gtg gag gtg tgg 293
Tyr Ala Trp Lys Arg Met Glu Val Gly Gln Gln Ala Val Glu Val Trp
80 85 90

cag ggc ctg gcc ctg ctg agc gag gcc gtg ctg cgg ggc cag gcc ctg 341
Gln Gly Leu Ala Leu Leu Ser Glu Ala Val Leu Arg Gly Gln Ala Leu
95 100 105

ctg gtg atc agc agc cag ccc tgg gag ccc ctg cag ctg cac gtg gac 389
Leu Val Ile Ser Ser Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp
110 115 120

aag gcc gtg agc ggc ctg cgg agc ctg acc acc ctg ctg cgg gcc ctg 437
Lys Ala Val Ser Gly Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu
125 130 135

ggc gcc cag aag gag gcc atc agc ccc ccc gac gcc gcc agc gcc gcc 485
Gly Ala Gln Lys Glu Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala
140 145 150 155

ccc ctg cgg acc atc acc gcc gac acc ttc cgg aag ctg ttc cgg gtg 533
Pro Leu Arg Thr Ile Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val
160 165 170

| | |
|---|------|
| tac ccc aac ttc ctg cgg ggc aag ctg aag ttc tac acc ggc gag gcc | 581 |
| Tyr Pro Asn Phe Leu Arg Gly Lys Leu Lys Phe Tyr Thr Gly Glu Ala | |
| 175 180 185 | |
| tgc cgg ggc ggc ggc ggc ggc agc ggc ggc ggc ggc gag ttc ggc ggc | 629 |
| Cys Arg Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly Glu Phe Gly Gly | |
| 190 195 200 | |
| ggc ggc agc cag aag gtg acc agc ctg acc gcc tgc ctg gtg gac cag | 677 |
| Gly Gly Ser Gln Lys Val Thr Ser Leu Thr Ala Cys Leu Val Asp Gln | |
| 205 210 215 | |
| agc ctg cgg ctg gac tgc cgg cac gag aac acc agc agc agc ccc atc | 725 |
| Ser Leu Arg Leu Asp Cys Arg His Glu Asn Thr Ser Ser Ser Pro Ile | |
| 220 225 230 235 | |
| cag tac gag ttc agc ctg acc cgg gag acc aag aag cac gtg ctg ttc | 773 |
| Gln Tyr Glu Phe Ser Leu Thr Arg Glu Thr Lys Lys His Val Leu Phe | |
| 240 245 250 | |
| ggc acc gtg ggc gtg ccc gag cac acc tac cgg agc cgg acc aac ttc | 821 |
| Gly Thr Val Gly Val Pro Glu His Thr Tyr Arg Ser Arg Thr Asn Phe | |
| 255 260 265 | |
| acc agc aag tac cac atg aag gtg ctg tac ctg agc gcc ttc acc agc | 869 |
| Thr Ser Lys Tyr His Met Lys Val Leu Tyr Leu Ser Ala Phe Thr Ser | |
| 270 275 280 | |
| aag gac gag ggc acc tac acc tgc gcc ctg cac cac agc ggc cac agc | 917 |
| Lys Asp Glu Gly Thr Tyr Thr Cys Ala Leu His His Ser Gly His Ser | |
| 285 290 295 | |
| ccc ccc atc agc agc cag aac gtg acc gtg ctg cgg gac aag ctg gtg | 965 |
| Pro Pro Ile Ser Ser Gln Asn Val Thr Val Leu Arg Asp Lys Leu Val | |
| 300 305 310 315 | |
| aag tgc gag ggc atc agc ctg ctg gcc cag aac acc agc cac cac cac | 1013 |
| Lys Cys Glu Gly Ile Ser Leu Leu Ala Gln Asn Thr Ser His His His | |
| 320 325 330 | |
| cac cac cac tgatgataag atcggatcct aggcttcc | 1050 |
| His His His | |

<210> 8

<211> 334

<212> PRT

<213> Artificial Sequence

<220>

<223> SuperEpo

<400> 8

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Leu Ser Leu Pro Leu Gly Leu Pro Val Leu Gly Ala Pro Pro Arg Leu
          20           25           30
Ile Cys Asp Ser Arg Val Leu Glu Arg His Leu Leu Glu Ala Lys Glu
          35           40           45
Ala Glu Ser Ile Thr Thr Gly Cys Val Glu Asp Cys Ser Leu Asn Glu
          50           55           60
Asn Ile Thr Val Pro Asp Ser Lys Val Asn Phe Tyr Ala Trp Lys Arg
65           70           75           80
Met Glu Val Gly Gln Gln Ala Val Glu Val Trp Gln Gly Leu Ala Leu
          85           90           95
Leu Ser Glu Ala Val Leu Arg Gly Gln Ala Leu Leu Val Ile Ser Ser
          100          105          110
Gln Pro Trp Glu Pro Leu Gln Leu His Val Asp Lys Ala Val Ser Gly
          115          120          125
Leu Arg Ser Leu Thr Thr Leu Leu Arg Ala Leu Gly Ala Gln Lys Glu
          130          135          140
Ala Ile Ser Pro Pro Asp Ala Ala Ser Ala Ala Pro Leu Arg Thr Ile
145          150          155          160
Thr Ala Asp Thr Phe Arg Lys Leu Phe Arg Val Tyr Pro Asn Phe Leu
          165          170          175
Arg Gly Lys Leu Lys Phe Tyr Thr Gly Glu Ala Cys Arg Gly Gly Gly
          180          185          190
Gly Gly Ser Gly Gly Gly Gly Glu Phe Gly Gly Gly Gly Ser Gln Lys
          195          200          205
Val Thr Ser Leu Thr Ala Cys Leu Val Asp Gln Ser Leu Arg Leu Asp
          210          215          220
Cys Arg His Glu Asn Thr Ser Ser Ser Pro Ile Gln Tyr Glu Phe Ser
225          230          235          240
Leu Thr Arg Glu Thr Lys Lys His Val Leu Phe Gly Thr Val Gly Val
          245          250          255
Pro Glu His Thr Tyr Arg Ser Arg Thr Asn Phe Thr Ser Lys Tyr His
          260          265          270
Met Lys Val Leu Tyr Leu Ser Ala Phe Thr Ser Lys Asp Glu Gly Thr
          275          280          285
Tyr Thr Cys Ala Leu His His Ser Gly His Ser Pro Pro Ile Ser Ser
          290          295          300
Gln Asn Val Thr Val Leu Arg Asp Lys Leu Val Lys Cys Glu Gly Ile
305          310          315          320
Ser Leu Leu Ala Gln Asn Thr Ser His His His His His His
          325          330
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<210> 9

<211> 600

<212> DNA

<213> Artificial Sequence

<220>

<223> carrier encoding glucagon-like peptide 1

<221> CDS

<222> (29)...(556)

<400> 9

| | |
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| Met His Gly Glu Gly Thr Phe Thr | |
| 1 5 | |
| tct gac gtt tct tct tac ctg gaa ggt cag gcg gcg aaa gag ttc atc | 100 |
| Ser Asp Val Ser Ser Tyr Leu Glu Gly Gln Ala Ala Lys Glu Phe Ile | |
| 10 15 20 | |
| gcg tgg ctg gtt aaa ggt cgt ggt ggt ggt ggt ggt tct ggt ggt ggt | 148 |
| Ala Trp Leu Val Lys Gly Arg Gly Gly Gly Gly Gly Ser Gly Gly Gly | |
| 25 30 35 40 | |
| ggt gag ttc ggt ggt ggt ggt tct cag aaa gtt acc tct ctg acc gcg | 196 |
| Gly Glu Phe Gly Gly Gly Gly Ser Gln Lys Val Thr Ser Leu Thr Ala | |
| 45 50 55 | |
| tgc ctg gtt gac cag tct ctg cgt ctg gac tgc cgt cac gaa aac acc | 244 |
| Cys Leu Val Asp Gln Ser Leu Arg Leu Asp Cys Arg His Glu Asn Thr | |
| 60 65 70 | |
| tct tct tct ccg atc cag tac gag ttc tct ctg acc cgt gaa acc aaa | 292 |
| Ser Ser Ser Pro Ile Gln Tyr Glu Phe Ser Leu Thr Arg Glu Thr Lys | |
| 75 80 85 | |
| aaa cac gtt ctg ttc ggt acc gtt ggt gtt ccg gaa cac acc tac cgt | 340 |
| Lys His Val Leu Phe Gly Thr Val Gly Val Pro Glu His Thr Tyr Arg | |
| 90 95 100 | |
| tct cgt acc aac ttc acc tct aaa tac cac atg aaa gtt ctg tac ctg | 388 |
| Ser Arg Thr Asn Phe Thr Ser Lys Tyr His Met Lys Val Leu Tyr Leu | |
| 105 110 115 120 | |
| tct gcg ttc acc tct aaa gac gaa ggt acc tac acc tgc gcg ctg cac | 436 |
| Ser Ala Phe Thr Ser Lys Asp Glu Gly Thr Tyr Thr Cys Ala Leu His | |
| 125 130 135 | |
| cac tct ggt cac tct ccg ccg atc tct tct cag aac gtt acc gtt ctg | 484 |
| His Ser Gly His Ser Pro Pro Ile Ser Ser Gln Asn Val Thr Val Leu | |
| 140 145 150 | |
| cgt gac aaa ctg gtt aaa tgc gaa ggt atc tct ctg ctg gcg cag aac | 532 |
| Arg Asp Lys Leu Val Lys Cys Glu Gly Ile Ser Leu Leu Ala Gln Asn | |
| 155 160 165 | |
| acc tct cac cac cac cac cac cac tgataatgag atcttgaggc cggatccgct | 586 |
| Thr Ser His His His His His His | |
| 170 175 | |
| taagatcccg gcaa | 600 |

<210> 10
 <211> 176
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> chimeric ThyOx carrier polypeptide containing
 glucagon-like peptide 1

<400> 10
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 20 25 30
 Gly Gly Gly Gly Ser Gly Gly Gly Gly Glu Phe Gly Gly Gly Gly Ser
 35 40 45
 Gln Lys Val Thr Ser Leu Thr Ala Cys Leu Val Asp Gln Ser Leu Arg
 50 55 60
 Leu Asp Cys Arg His Glu Asn Thr Ser Ser Ser Pro Ile Gln Tyr Glu
 65 70 75 80
 Phe Ser Leu Thr Arg Glu Thr Lys Lys His Val Leu Phe Gly Thr Val
 85 90 95
 Gly Val Pro Glu His Thr Tyr Arg Ser Arg Thr Asn Phe Thr Ser Lys
 100 105 110
 Tyr His Met Lys Val Leu Tyr Leu Ser Ala Phe Thr Ser Lys Asp Glu
 115 120 125
 Gly Thr Tyr Thr Cys Ala Leu His His Ser Gly His Ser Pro Pro Ile
 130 135 140
 Ser Ser Gln Asn Val Thr Val Leu Arg Asp Lys Leu Val Lys Cys Glu
 145 150 155 160
 Gly Ile Ser Leu Leu Ala Gln Asn Thr Ser His His His His His His
 165 170 175

<210> 11
 <211> 4000
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> vector pEgea M3

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 acgacccccg cccattgacg tcaataatga cgtatgttcc catagtaacg ccaatagga 120
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 aagtgtatca tatgccaagt acgcccccta ttgacgtcaa tgacggtaaa tggccgcct 240
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| aatgccgcaa | aaaagggaat | aagggcgaca | cggaatgtt | gaatactcat | actcttcctt | 3960 |
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| aacggggggg | tcgtgcacac | agcccagctt | ggagcgaacg | acctacaccg | aactgagata | 540 |
| cctacagcgt | gagctatgag | aaagcgccac | gcttcccga | gggacaaagg | cggacaggta | 600 |
| tccggtaagc | ggcagggtcg | gaacaggaga | gcgcacgagg | gagcttccag | ggggaaacgc | 660 |
| ctgggtatct | tatagtcctg | tcgggtttcg | ccacctctga | cttgagcgtc | gattttttgt | 720 |
| atgctcgtca | ggggggcgga | gcctatggaa | aaacgccagc | aacgcggcct | ttttacgggt | 780 |
| cctgcccgtc | cattaggcgg | gctattacca | atgcttaatc | agtgaggcac | ctatctcagc | 840 |
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